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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,695	05/09/2006	Jukka Reunamaki	868A.0034.U1(US)	3672
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EXAMINER LAM, KENNETH T				
ART UNIT 2611		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/578,695

**Applicant(s)**

REUNAMAKI ET AL.

**Examiner**

KENNETH LAM

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 09 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 05/09/06  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Inventor's Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or (2) a patent granted on an application for patent by another filed in

the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

3. Claims 1-3, 5-8, 10-11, 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Aiello et al. (Aiello herein after) (US 2005/0018762 A1).

Re Claim 1, Aiello discloses a method for wideband communication, the method comprising:

transmitting pulses from a first communication device to another device via a wireless link at a pulse repetition frequency (Figure 1), the pulse repetition frequency substantially defining a time difference between adjacent pulses ([0089]), wherein the method comprises:

performing measurements, based on pulses received at said another device, in order to obtain information on delay conditions of the wireless link ([0089]-[0091]);

adjusting the pulse repetition frequency based on said measurements ([0024]-[0025]).

Re Claim 2, Aiello discloses the method of claim 1, wherein said measurements comprise measuring how a transmitted pulse is spread in time-domain due to delay on a transmission channel ([0085], [0089]).

Re Claim 3, Aiello discloses the method of claim 2, wherein the spread of the transmitted pulse caused by multipath propagation or echoes, experienced at said

another device as a delay spread, is measured ([0006]).

Re Claim 5, Aiello discloses the method of claim 1, wherein the method comprises adjustment of the pulse repetition frequency by means of negotiation ([0024]).

Re claim 6, Aiello discloses the method of claim 1, wherein said first communication device and said another device communicate in accordance with ultra-wideband technology ([0011]).

Re Claim 7, Aiello discloses the method of claim 1, wherein pulses from said first communication device to said another device are transmitted according to impulse radio technology ([0011]).

Re Claim 8, Aiello discloses a communication device configured for wideband communication, the communication device comprising:

a receiver for receiving pulses transmitted, by another device, via a wireless link, wherein the communication device (Figure 1) comprises:

a measurement arrangement for measuring, based on the received pulses, delay conditions of the wireless link for link adjustment purpose ([0085]-[0090]).

Re Claim 10, Aiello discloses the communication device of claim 8, wherein the measurement arrangement is configured for delay spread measurements which indicate how a transmitted pulse is spread in time-domain due to delay on a transmission channel ([0085], [0089]).

Re Claim 11, Aiello discloses the communication device of claim 8, wherein the communication device is configured for negotiation of pulse repetition frequency used in pulse transmission ([0024]).

Re Claim 19, Aiello discloses a system for wideband communication the system comprising a first communication device and a second communication device, wherein the first communication device comprises:

a transmitter for transmitting pulses to said second communication device via a wireless link at a pulse repetition frequency ([0044]), the pulse repetition frequency substantially defining a time difference between adjacent pulses ([0024]), wherein the system comprises:

a measurement arrangement for performing measurements, based on pulses received at said another device, in order to obtain information on delay conditions of the wireless link ([0089]-[0091]); the system further comprising:

means for adjusting the pulse repetition frequency based on said measurements ([0024]-[0025]).

Re Claim 20, Aiello discloses the system of claim 19, wherein said measurements comprise channel delay spread measurements for adjustment of pulse repetition frequency used in transmission ([0085], [0089]).

4. Claims 12, 15, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Jeon et al. (Jeon herein after) (US 2004/0110510 A1).

Re Claim 12, Jeon discloses a communication device configured for wideband communication, the communication device comprising:

a transmitter (Figure 1) for transmitting pulses via a wireless link to another device ([0026]); and

a receiver (Figure 1) for receiving link control information from said another device ([0030]), wherein the link control information comprises information indicative of measured delay conditions of the wireless link for link adjustment purpose ([0038], [0057]-[0058]).

Re Claim 15, Jeon discloses the communication device of claim 12, wherein the measured delay conditions indicate delay spread on a transmission channel ([0057]-[0058]).

Re Claim 18, Jeon discloses the communication device of claim 12, wherein the communication device is selected from a group comprising:

a mobile phone, a laptop computer, a desktop computer, a Personal Digital Assistant, a digital camera ([0003]).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (***See MPEP Ch. 2141***)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

6. Claims 4, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aiello et al. (Aiello herein after) (US 2005/0018762 A1) in view of Jeon et al. (Jeon herein after) (US 2004/0110510 A1).

Re Claim 4, Jeon discloses the method of claim 1 except wherein the method comprises:

transmitting to said first communication device link control information comprising said information on delay conditions for the purpose of adjusting the pulse repetition

frequency. However, Jeon teaches a wireless communication system for channel quality estimation and link adaptation for spread spectrum transmitting communication device link control information comprising information on delay conditions for the purpose of adjusting signal modulation and data rate ([0074]-[0076]).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the channel quality estimation and link adaptation as taught by Jeon with the communication device as taught by Aiello to further improve the multipath signal to noise ratio to achieve a faster and better communication.

Re Claim 9, the combined teachings disclose the communication device of claim 8, Jeon discloses wherein the communication device comprises:

a transmitter for transmitting link control information comprising information indicative of the measured delay conditions to said another device for said link adjustment purpose ([0057]-[0059], Figure 1).

7. Claims 13-14, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeon et al. (Jeon herein after) (US 2004/0110510 A1) in view of Aiello et al. (Aiello herein after) (US 2005/0018762 A1).

Re Claim 13, Jeon discloses the communication device of claim 12, except wherein the communication device is configured for transmission of pulses in

accordance with a pulse repetition frequency which substantially defines a time-domain transmission interval between two adjacent pulses.

However, Aiello teaches an ultra wide band communication system with data link layer interface wherein the communication device is configured for transmission of pulses in accordance with a pulse repetition frequency which substantially defines a time-domain transmission interval between two adjacent pulses ([0024], [0044], [0074]-[0076]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the ultra wide band communication device as taught by Aiello with the channel quality estimation and link adaptation as taught by Jeon to further improve the multipath signal to noise ratio to achieve a faster and better communication.

Re Claim 14, the combined teachings disclose the communication device of claim 13, Aiello discloses wherein the communication device is configured for adjustment of a pulse repetition frequency of its pulse transmission based on said received information indicative of measured delay conditions of the wireless link ([0024]-[0025]).

Re Claim 16, Jeon discloses the communication device of claim 12, except wherein the transmitter is configured for transmission according to impulse radio technology.

However, Aiello teaches an ultra wide band communication system with data link layer interface wherein the transmitter is configured for transmission according to impulse radio technology ([0011], [0024]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the ultra wide band communication device as taught by Aiello with the channel quality estimation and link adaptation as taught by Jeon to further improve the multipath signal to noise ratio to achieve a faster and better communication.

Re Claim 17, Jeon discloses the communication device of claim 12, except wherein the communication device is configured for operation in accordance with ultra-wideband technology.

However, Aiello teaches an ultra wide band communication system with data link layer interface wherein the communication device is configured for operation in accordance with ultra-wideband technology ([0011], [0024]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the ultra wide band communication device as taught by Aiello with the channel quality estimation and link adaptation as taught by Jeon to further improve the multipath signal to noise ratio to achieve a faster and better communication.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH LAM whose telephone number is (571)270-1862. The examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KENNETH LAM/  
Examiner, Art Unit 2611  
04/02/2009  
/Shuwang Liu/  
Supervisory Patent Examiner, Art Unit 2611